

April 25, 2014

Ms. Kay Hust
Clark County Public Works
15100 NW McCann Road
Vancouver, WA 98685

Subject: Notification of Emergency Generator Engine Installation

Dear Ms. Hust:

The Southwest Clean Air Agency (SWCAA) received your Small Unit Notification (SUN) on April 18, 2014 for installation and operation of an emergency generator engine at the Salmon Creek Wastewater Treatment Plant at 15100 NW McCann Road, Vancouver, WA. For administrative and tracking purposes SWCAA has assigned tracking number SUN-055 to this notification. This notification was filed in accordance with SWCAA 400-072 and applies to the installation of one emergency generator engine. The emergency generator engine was identified as:


- (1) 900 bhp (standby) diesel-fired Caterpillar model C18 engine to drive a 600 kW (standby) Caterpillar generator set. The engine will be EPA Tier 2 certified. This unit replaces the Onan Emergency Generator Engine (serial number 250-04768).

SWCAA has completed a review of your notification and the associated support information and has determined that the notification meets the requirements of SWCAA 400-072(2). Once installed, affected equipment must maintain compliance with the requirements of SWCAA 400-072(4)(c) "**Emergency service internal combustion engines**". A copy of the relevant SWCAA 400-072 section is attached for your information.

Be advised that emission units installed pursuant to SWCAA 400-072 are subject to source registration and periodic inspection. Registration fees for this equipment will be invoiced consistent with SWCAA 400-100.

If you need further assistance or have any questions regarding these matters, please contact me at (360) 574-3058 extension 130.

Sincerely,



Paul T. Mairose
Chief Engineer



SWCAA 400-072 Emission Standards for Selected Small Source Categories

[Statutory Authority: Chapter 70.94.141 RCW. Original adoption 09-21-056 filed 10/15/09, effective 11/15/09.]

- (4) **Source categories.**
- (c) **Emergency service internal combustion engines.**
- (i) **Applicability.** The provisions of this section apply to emergency service internal combustion engines with a rating of less than 1,000 horsepower (e.g., emergency generators, fire pumps, sewer lift stations, etc.).
- (ii) **Emission limits and standards.**
- (A) Visible emissions from diesel fired engine exhaust stacks shall not exceed ten percent opacity for more than 3 minutes in any one hour period as determined in accordance with SWCAA Method 9 (See SWCAA 400, Appendix A). This limitation shall not apply during periods of cold start-up.
- (iii) **General requirements.**
- (A) Liquid fueled engines shall only be fired on #2 diesel or biodiesel. Fuel sulfur content of liquid fuels shall not exceed 0.0015% by weight (15 ppmw). A fuel certification from the fuel supplier may be used to demonstrate compliance with this requirement.
- (B) Gaseous fueled engines shall only be fired on natural gas or propane.
- (C) Each compression ignition engine shall be EPA Tier certified and manufactured no earlier than January 1, 2008.
- (D) Engine operation shall be limited to maintenance checks, readiness testing, and actual emergency use.
- (E) Engine operation for maintenance checks and readiness testing shall not exceed 100 hours per year. Total engine operation shall not exceed 200 hours per year.
- (F) Each engine shall be equipped with a nonresettable hourmeter for the purpose of documenting hours of operation.
- (G) Engine exhaust shall be discharged vertically. Any device that obstructs or prevents vertical discharge is prohibited.
- (iv) **Monitoring and recordkeeping requirements.** The information listed below shall be recorded at the specified intervals, and maintained in a readily accessible form for a minimum of 3 years. With the exception of data logged by a computerized data acquisition system, each required record shall include the date and the name of the person making the record entry.
- (A) Total hours of operation for each engine shall be recorded annually;
- (B) Fuel sulfur certifications shall be recorded for each shipment of liquid fuel;
- (C) Maintenance activities shall be recorded for each occurrence consistent with the provisions of 40 CFR 60.4214;
- (D) Upset conditions that cause excess emissions shall be recorded for each occurrence; and
- (E) All air quality related complaints received by the permittee and the results of any subsequent investigation or corrective action shall be recorded for each occurrence.
- (v) **Testing requirements.** None.

- (vi) **Reporting requirements.**
 - (A) All air quality related complaints received by the owner or operator shall be reported to SWCAA within three calendar days of receipt.
 - (B) The owner or operator of an affected emergency engine shall report the following information to the Agency no later than March 15th for the preceding calendar year:
 - (I) Hours of engine operation; and
 - (II) Air emissions of criteria air pollutants, VOCs, and toxic air pollutants (TAPs).

**Summary Information (by SWCAA) for SUN-055
Clark County Salmon Creek Wastewater Treatment Facility
Emergency Generator Replacement**

The new Emergency Generator Engine will drive a 600 kW electrical generator that will be used to provide emergency power to the upper plant. This generator engine replaces the 250 kW Onan Emergency Generator set. The following equipment details were available:

Unit Identification:	Cat Emergency Generator #1
Engine Make / Model:	Caterpillar / C18
Engine Serial Number:	to be determined
Fuel:	Diesel
Fuel Consumption:	42.7 gallons per hour at full standby load
Horsepower Rating:	900 horsepower
Installed:	Planned for July 15 – October 31, 2014
Engine Built (Date):	to be determined
Engine Certification:	EPA Tier 2
Generator Set Make / Model:	Caterpillar / Not specified
Generator Set Output:	600 kW
Stack Description:	~8" inside diameter, exhausted at 4,785 acfm, 994°F, ~6' above grade
Location:	15100 NW McCann Road, Vancouver, Washington 98685

Cat Emergency Generator #1 Engine. Potential annual emissions from the combustion of ultra-low sulfur diesel (<0.0015% sulfur by weight) were calculated with the assumption that the equipment will operate at full load for up to 200 hours per year.

Cat Emergency Generator #1						
Hours of Operation =	200 hours					
Power Output =	900 horsepower					
Diesel Density =	7.206 pounds per gallon					
Fuel Sulfur Content =	0.0015 % by weight					
Fuel Consumption Rate =	42.7 gal/hr					
Fuel Heat Content =	0.138 MMBtu/gal (for use with GHG factors from 40 CFR 98)					
Pollutant	Emission Factor g/(hp-hr)	Emissions lb/hr	Emissions tpy	Emission Factor Source		
NO _x	5.75	11.41	1.14	Caterpillar		
CO	0.46	0.91	0.091	Caterpillar		
VOC	0.01	0.02	0.002	Caterpillar		
SO _x as SO ₂		0.0092	0.0009	Mass Balance		
PM	0.03	0.06	0.0060	Caterpillar		
PM ₁₀	0.03	0.06	0.0060	Caterpillar		
PM _{2.5}	0.03	0.06	0.0060	Caterpillar		
Greenhouse Gases	kg/MMBtu	GWP	CO ₂ e lb/MMBtu	CO ₂ e lb/gallon	tpy, CO ₂ e	Emission Factor Source
CO ₂	73.96	1	163.05	23	96	40 CFR 98
CH ₄	0.003	25	0.165	0.023	0.10	40 CFR 98
N ₂ O	0.0006	298	0.394	0.054	0.23	40 CFR 98
Total GHG - CO₂e	74.0		163.6	23	96	